

The group of Godwits, though sharply defined, show an affinity with the familiar *Gallinago* through the Red-breasted Snipe (*Macrorhamphus griseus*) and with *Totanus* through the Willet (*Symphemia semipalmata*) and the Terek Sandpiper (*Terekia cinerea*), allowing us to infer that when sharp lines of demarcation exist in families the link is only missing, dropped out, or improved upon by the survival of the fittest, adapting itself to the slow but sure changes in Nature. In fact it is impossible to avoid the conclusion, when we thus consider this group, that they have been derived from some common ancestor. It is far more difficult to speculate why certain characteristics have been retained or lost in the individual species of the two groups; but there are indications that the changes have been effected in consequence of the different breeding-haunts of the species, and it will also be found that those that wing their way farthest north have proportionately more pointed wings.

XLIII.—*The Birds of Spitsbergen, as at present determined.*

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I DO not think it needful to give, in this Introduction, more than an outline of the voyage to which it refers. 'The Ibis' cannot fairly be asked to concern itself with personal adventures, but rather with an account of the birds. We left Tromsö on June 15th, sighted Bear Island about one o'clock on the following day, and on the 17th inst. fell in with light scattered ice in N. lat. 76° 10'. All that day we went through the ice, sighting, towards evening, Horn Mountain and the Spitsbergen cliffs.

Upon the ice were many young harp-seals, no doubt on their migration eastward to the Siberian seas. Brünnich's Guillemots, Mandt's Black Guillemots, Fulmars, Little Auks, Arctic Terns, and one pair of Pomatorhine Skuas exhaust the birds we saw that day.

On the 18th we landed at Cape Staraschin, in Ice Fjord. In view of the contradictory statements about the Bernicle

Goose in Spitsbergen, it is not a little curious that the first bird I should meet with on the land was of this species. There is a large lake—the largest bit of inland water I saw in Spitsbergen—lying a mile or so inland from Cape Staraschin. It was still frozen over, except at one point, and on its banks a pair of Pink-footed Geese were feeding, while a pair of Red-throated Divers flew in from the sea and settled in the open water. There were Snow-Buntings, already in pairs, and several pairs of Eider Ducks (*Somateria mollissima*) on the sea. Nearer Green Harbour we came to an anchor off Festning Rock, in which several Mandt's Guillemots had eggs.

By the 20th the movements of the ice enabled us to steam into Advent Bay, where we lay in a good anchorage behind the southern point. That day we shot a pair of Grey Phalaropes and found an Arctic Tern's nest containing one egg. I left a day or two later than Sir Martin Conway, viz. on August 18th. The spots visited and referred to include Ice Fjord, North Fjord, Dickson's Bay, Horn Sound, Danes Island, Walden Island, and Wijde Bay.

A glance at the map will remind readers of this article that the western island of Spitsbergen is almost divided by two inlets of the sea:—one (Ice Fjord) running from the south northwards, and breaking itself up into various arms and entries; the other running from north southwards, and known as Wijde or Wide Bay. A large proportion of the west coast of Ice Fjord consists of glacier and bare rock, but on the opposite side are many valleys, which are green in summer and cut into by streams fed by the melting snow. In those valleys the Pink-footed Geese nest sparingly, the Purple Sandpiper abounds, and the Snow-Bunting nests in the "talus" slopes along their sides. In places the rocks are precipitous and afford nesting-sites for colonies of Brünnich's and Mandt's Guillemots, for Fulmars and Little Auks. But Ice Fjord, on the whole, is disappointing to an ornithologist. As the primary object of Sir Martin Conway's expedition was work inland, a whale-boat was sufficient for the party's needs. But a whale-boat, though adequate for conveying camp-

material from point to point, is not good for a naturalist. It is heavy and is designed to be pulled by a crew of four trained whaling-men. We had but one man: at first a young man, Carl, who hated hard work; and later an old man, who was, moreover, suffering from lumbago during the whole of our visits to the northern inlets. The hard work therefore fell to my companion, Mr. H. E. Conway (Sir Martin Conway's cousin, artist to the expedition) and myself. As good healthy exercise we enjoyed this well enough; but while you are labouring in the heavy seas the precious moments go by, and you finally arrive at your hunting-ground tired and not fresh. Any naturalist who may contemplate a voyage to Spitsbergen will be well advised to take a steam-launch, and thus he would (ice permitting) command any favourable points during the short breeding-season. Running into a bay he could search the valley in a single walk, and, instead of camping for rest and sleep, could be off again and miles away in a few hours at his next point. It is necessary to remember that there is all the difference in the world between a high Arctic breeding-ground and one further south. In a district of mountain, lake, and woodland, on the tundra with its streams and willow-scrub, in short, in almost any district other than that of the Spitsbergen valleys, it pays best to settle down and work one definite area thoroughly. But here there is, speaking generally, no cover, and the birds belong to the species which show. The Waders are always moving, the Geese can be seen a mile away, and though the ducks may be sitting closely, their drakes will be in evidence. This is not to say that a rapid survey is better than a close one. What I do say is this: that if, to-day, you take a general walk up one side of a Spitsbergen valley and down the other, keeping your eyes about you, examining feathers and other signs, you will have a very shrewd idea of what that valley contains. If on the following day you take a less extended walk, but go carefully and slowly, prepared for surprises and searching every spot with your glasses, you are as likely as not to see even less than on the day before. But there is

no rule without exceptions, and were I to go to Spitsbergen again and had no opportunity of working Stor Fjord, I should confine myself during the best part of the breeding-season to two districts. First I should work Van Mijen's Bay and Van Keulen Bay, and then I should run right up north and work Liefde Bay. Van Mijen's Bay is, from natural circumstances, a very favourable bird-ground, and Liefde Bay is filled with islands and has never been worked, so far as I know. In Van Mijen's Bay the Bernicle Goose probably nests, and in Liefde Bay I should expect to find the nest of the King-Eider.

Since the publication of Professor Newton's paper (*Ibis*, 1865, pp. 199-219 and pp. 496-525) several voyages have been made to Spitsbergen, and the results of these are incorporated where necessary in this list. I say advisedly "where necessary," for while I have not to repeat references to abundant species, I have been at the pains to read carefully all that has been written, to give the records of rarer forms, and to quote any testimony on doubtful points.

The following is a list of accounts referred to:—

1870. In the summer of this year Th. von Heuglin and Count Zeil explored East Spitsbergen:—'Reisen nach dem Nordpolarmeer in den Jahren 1870 und 1871 von M. Th. Heuglin.' (3 vols.) Braunschweig, 1874.
1873. Mr. Benjamin Leigh Smith, on his third Arctic voyage, was accompanied, in the steam-yacht 'Diana,' by the Rev. A. E. Eaton, Mr. T. B. Potter, and Lieut. H. C. Chermiside. Mr. Eaton was naturalist to the party, and his paper is entitled "Notes on the Fauna of Spitsbergen." *Zoologist*, s. s. p. 3762 and pp. 3805-3822.
1881. In this summer Mr. A. H. Cocks and Mr. Abel Chapman went on the 'Pallas' to the West Coast of Spitsbergen. Mr. Cocks's interesting account bears the title "Notes of a Naturalist on the West Coast of Spitsbergen." *Zoologist*, 1882*.
1882. In the autumn of this year Mr. Cocks again visited Spitsbergen on a walrus "jagt," chartered by himself and M. Charles Rabot. They left Tromsø on Aug. 26th, and returned on Oct. 7th of that year. The trip is described as "An Autumn Visit to Spitsbergen." *Zoologist*, 1883.

* [Mr. Abel Chapman also wrote an account of this visit. *Nat. Hist. Tr. Northumb.* viii. pp. 138-158.—EDD.]

1894. Col. H. W. Feilden accompanied the late Captain Townley-Parker in the s.y. 'Saide' on a short visit to Spitsbergen in this year, and wrote "A Flying Visit to Spitsbergen." *Zoologist*, 1895, pp. 81-90.
- 1858, 1864, 1873. Professor Nordenskiöld visited Spitsbergen in these years, and in 1873 he made his famous crossing of the ice-sheet of North-East Land. References to the birds of Spitsbergen will be found in the first volume of the *Voyage of the 'Vega.'* Some of these are, however, not convincing.

The following also contain references :—

- Wolley. *Catalogue of Eggs*, 1856, p. 17. (Occurrence of *Phalaropus fulicarius*.)
- Gould. *P. Z. S.* 1858, p. 354. (Description of *Lagopus hemileucurus*.)
- Evans and Sturge. *Ibis*, 1859, pp. 166-174*.
- Torell. *Bidrag till Spitsbergens Molluskfauna, &c.* Stockholm, 1859.

I have only to add that the Rev. H. H. Slater, who had collected a list of references in view of himself writing up the Spitsbergen birds, placed these with ready kindness in my hands on learning that I intended giving my observations in 'The Ibis.'

1. LINOTA HORNEMANNI, Holböll. Arctic Redpoll †.

Doubts which existed at the time of the publication of Prof. Newton's remarks (*Ibis*, 1865, p. 502) upon the identity of Scoresby's Spitsbergen Redpoll (*Arct. Reg.* i. p. 131 & p. 537) have long since been set at rest by Mr. Eaton's discovery of this large form in some numbers at Wijde Bay in 1873. He says of some of the 'Diana's' crew :—"They also found a nest upon the ground containing five eggs, blue spotted with reddish, which were possibly Redpoll's, but they may have been Snow-Bunting's. As these were hard-set, they did not bring them to me." At the same time there can be little doubt of the identity of these eggs, for the Snow-Bunting is the very last bird to nest upon the ground,

* ["Notes on the Birds of Western Spitzbergen, as observed in 1855;" an important paper, at the time. The authors brought back the bird which Gould named *Lagopus hemileucurus*.—EDD.]

† I have been guided to the adoption both of the specific and of the popular name of this northern form of the Mealy Redpoll by Prof. Newton in the 4th ed. of Yarrell.

though it often nests *in* the ground, and no more careful concealer of its nest exists. I have no other references to this bird, either by others or myself.

2. *PLECTROPHENAX NIVALIS* (Linn.). Snow-Bunting.

The Snow-Bunting has been so frequently recorded, that all it seems necessary to say here is that I found the species generally distributed in suitable nesting-spots. There were two pairs in the river delta under the Norwegian graves at Advent Bay, and a pair here and there up that valley. In Wijde Bay I saw a pair, in Dickson's Bay two, and there was quite a colony of breeding-birds in the hyperite rocks at Eckmann's Bay and near the Splendid Glacier. On August 11 there were small flocks of old and young on Oxel Island, Van Mijen's Bay.

+ 3. *NYCTEA SCANDIACA* (Linn.). Snowy Owl.

It would seem to be now established beyond challenge that the Snowy Owl must be regarded as merely a straggler to Spitsbergen. Up to the date of the publication of Prof. Newton's paper but one example had been recorded. Of voyagers who follow, Lamont mentions that one of his party shot one on Ziegler Island, Deep Bay, in August 1869. Von Heuglin did not observe it, nor did Mr. A. H. Cocks. Prof. Norden-skiöld records one killed in Wijde Bay in 1872 (Voy. 'Vega,' i. p. 131), and adds of this species: "It evidently breeds and winters at the Ptarmigan-fell." He gives, however, none of the evidence, and his conclusion may therefore fairly be questioned. Col. H. W. Feilden, who visited Spitsbergen in 1894, remarks (Zool. 1895, p. 90): "In our brief visit to Spitsbergen we obtained two specimens, saw two more, and saw traces of them." The facts in this paper discount to some extent the theory, advanced by previous writers, that the absence of the lemming explained the scarcity of the Snowy Owl, for Col. Feilden found this bird content to feed upon the Little Auk, a statement I am able to confirm from my own observations. No Snowy Owl was seen last year, either by myself or by any of our party. No country could offer a greater advantage of nesting-sites for this species than

Spitsbergen; but I never succeeded in all my wanderings in finding a spot where castings were lying in any great quantity, nor any that seemed more than two or three seasons old. In this respect the vantage-points strikingly differed from those I have examined either in Northern Canada or in Kolguev. From the above it is, I think, a fair inference that in Spitsbergen the Snowy Owl is only—and very—sporadic*.

4. *FALCO*, sp.

I regret to say that I am personally unable to contribute any evidence as to the existence of a Spitsbergen Falcon, although the testimony of former writers points to a consensus of conviction in favour of the bird. Malmgren, indeed, went so far as to assert that the bird he saw was neither *Falco candicans* nor *F. islandus*, but *F. gyrfalco*. Von Heuglin has nothing to say at first-hand, but was assured by a Norwegian skipper that a Falcon was frequently observed by him in Ice Fjord in the summer of 1870. But perhaps the most expert, as well as the most positive, testimony is that of Mr. Abel Chapman and Mr. A. H. Cocks. The former observed "a large long-winged Falcon" soaring high over the water at Van Keulen Bay on July 30. At Recherche Bay Mr. Chapman says they "had a good view of a Gyrfalcon, which species I cannot say positively, but it looked white enough for *F. candicans*." And in the same account, "a Falcon was seen by Arnesen and some of the men when we were at the Swedish Meteorological Station at Cape Thordsen on Sept. 12th, stooping at one of the tame Pigeons brought out by the expedition [*i. e.* the Swedish Expedition under Nordenskiöld]. They succeeded in saving the Pigeon by shouting and waving their arms."

5. *ANSER BRACHYRHYNCHUS* (Baill.). Pink-footed Goose.

The Pink-footed Goose is distributed thinly, but generally, over a great part, at any rate, of Spitsbergen. Its breeding-habits do not differ, so far as my observation goes, from those of *A. erythropus* or *A. segetum*. Like these birds, it seldom, on the mainland, nests by the sea, but retires inland,

* [Mr. Arnold Pike records its occurrence on five occasions. See his diary, in Chapman's 'Wild Norway,' pp. 343-350.—EDD.]

and chooses for its nest some elevated point overlooking a stream or lake. Occasionally it nests upon small islands, and a female bird, with its nest, eggs, and the surrounding turf, now in the National Collection, was obtained by me on a small island off Cape Boheman, in Ice Fjord, on June 26th; the three eggs being then slightly incubated. This was the only pair of Geese upon the island. I shot the female as she flew off the nest, and the male for some time displayed great solicitude, swimming round and round and calling incessantly, but never came within shot. On June 20th these Geese had not quite scattered: for example, two flocks, of 22 and 14 respectively, flew up on that day to the head of Advent Bay; but these were very late birds. On July 24th two broods of young were running with their parents near the Splendid Glacier. Both these broods were in an advanced state of *grey*—not yellow—down. I am able to support the statement already made by Mr. Abel Chapman and Mr. A. H. Cocks to the effect that this Goose moults earlier than the Brent. Indeed, this probably also holds true of their respective genera; for I have already shown ('Ice-bound on Kolguev,' p. 423) that Bean and White-fronted Geese are both able to fly when the primaries of the Brent are only just starting to grow. There is also a point of habit in which, in my experience, Brents and "Grey" Geese differ. When a flock of Brent Geese are disturbed upon the land with their young, they make with all speed for the sea. "Grey" Geese, on the other hand—or, at all events, *A. erythropus*, *A. segetum*, and *A. brachyrhynchus*, the species which I have had the opportunity of observing—seek the sea reluctantly and only do so when they are, or think they are, "cornered." I have elsewhere (*ibid.* p. 221) described the way in which a Bean Goose will run along and then squat with its neck stretched straight out along the ground, exactly in the attitude assumed by the Thick-knee or Norfolk Plover. The Pink-footed Geese of Spitsbergen behave in the same way, if they have their young with them. Provided the ground is not too steep, they run for long distances, sometimes even along the edge of the water without entering it. Pink-footed Geese are remarkably quick upon

their legs, and the young birds when half-grown can run as fast as the old ones; the latter, if hurried, run with outstretched wings, which hinder them against the wind, but if too closely pressed, the goose, which leads (the gander brings up the rear), will suddenly drop, and the whole party follow her example. You can then walk up and look at them lying there, all in precisely the same attitude, with bodies flattened down and necks outstretched on the ground, so that you must stir them up in order to start them off again. The nest is well guarded by the gander, who will leave his sentry-post and walk round and round the sitting goose on a little track made by his steps, resenting your intrusion by a continued series of short sharp notes, not unlike those of the Brent.

†6. BERNICLA BRENTA (Pall.). Brent Goose.

I did not personally find any evidence of the immense numbers in which this species has been described as breeding in Spitsbergen, but no doubt there are a fair number scattered about over the small islands, although there were actually none on those which I visited off Cape Boheman, nor on the two islands of the Flower Garden, Cape Wijk; while on the Goose Islands there was not a Goose or a Duck, but there was a fine family of foxes. Further, when the nesting was over, instead of the vast numbers of these birds which I had expected to find on the sea, I only saw two lots*. One lot, about 40 in number, unable to fly, I moved off the beach under the snow-fort in Lost Island Bay on July 27th, and on July 22nd saw a lot of about 25 in Dickson's Bay. I was entangled in the ice at the time, the boat being entrapped between the old "bay"-ice and large rough hummocks of glacier- and floe-ice which had drifted in from Ice Fjord. These Brents were standing about round the blow-holes of the great seals (*Phoca barbata*), of which very many were lying on the ice. They were, perhaps, half a mile off when I first noticed them, and almost immediately set off running straight towards my boat. Peterson and I

* ["A skein of two hundred Brents passed south." Smeerenberg Bay, Aug. 26th: *A. Pike*.—EDD.]

were having a hard struggle with the ice, and were therefore in constant motion; but the only bit of open water lay beyond us, and the Geese were evidently set on making this, for they passed us within 20 yards, running with outstretched wings over the smooth bay-ice, the seals opening their mouths at them as they passed, and dropping in among the floes.

Nordenskiöld, referring to this bird, speaks (i. p. 125) of its "artless nest *without down*," as contrasted with "the Eider's nests, rich in down." This, of course, is a mistake. Nordenskiöld probably noticed the nest of a bird which had only just done laying and had not begun to sit.

I trust I shall not be considered captious if I here correct, as I suppose, an error which crept into Mr. Eaton's paper. "This bird goes by the name of 'Rein-Goose' in Spitsbergen" (Zool. 1874, pp. 3814, 3815), he says, and proceeds to find a reason for this in the supposition that others may, by fog or mirage, have been deceived, as the 'Diana's' crew were, into mistaking Brent Geese for reindeer. Of course the word is not Rein-Goose at all; it is "Ring-gaas," *i. e.* "Ring-Goose."

+ 7. BERNICLA LEUCOPSIS (Bechstein). Bernicle Goose.

Professor Newton, writing in 1865, was unable to assure himself that this species had been correctly reported from Spitsbergen. But there can be, I think, no doubt whatever that the bird is a regular summer visitor to that country; and a short review of the subsequent evidence upon which this conclusion is based may not be out of place.

Von Heuglin says that Dr. Smitt, in 1868, obtained one in the inner part of Advent Bay.

Mr. Eaton, July 22nd, 1873, obtained seven examples out of a flock of "a dozen or more" from a lakelet in the hills opposite Diana Island, and describes the occasion with much circumstance.

Mr. Lamont has described ('Yachting in Arctic Seas,' pp. 284, 285) how he succeeded in killing "a hundred" from "a pond a little in-shore at the end of Advent Bay" in July 1875. Startling as this sounds, I entirely agree with the opinion Col. Feilden has expressed (Zool., March 1895), that so experienced a sportsman and so good a

field-naturalist as Mr. Lamont was little likely to confuse Bernicles with Brents, especially since he expressly states that there were large flocks of *both* species round his pond.

Lieut. Stjemspez informed Mr. A. H. Cocks that "the members of the Swedish Geological Expedition [of 1882] had shot two adult birds of this species in Bell Sound, and had taken three young ones alive" (*ibid.* 1884, p. 16).

To this I may repeat that by a curious chance the first bird I saw on the land was a Bernicle Goose. This was on June 18th at Point Staraschin. E. J. Garwood, H. E. Conway, and I were being pulled ashore, and when within forty yards of our landing-place a Bernicle Goose suddenly appeared standing on a ridge of snow on the edge of the cliff, which is here some eight feet in height. While I was snatching up and loading my gun it took wing, and, firing a long shot at it, I missed. On June 30th I came upon seven in the marshes at the head of Advent Bay. On that day Dr. Gregory and I were engaged with sleighs conveying provisions up that valley to a point where Sir Martin Conway was encamped. The nature of the ground made it unwise to leave the ponies for more than a moment or two, so I only had a hurried try for these birds, which rose wildly out of shot. Later on I saw a party of nine Bernicles flying low over the ice of Advent Bay*.

Skipper Svendsen, owner of the walrus "jagt" 'Jasai,' of Tranö, with whom I visited the island, mentioned before, has a very quick eye for the differences in birds. He is engaged with his brother in white-whale and shark-catching, and his words most curiously recalled an account which I remember to have read (but cannot now find) of a Norwegian skipper who described "White-winged Geese" in Bell Sound. Svendsen spoke of them as "White-winged," sometimes as "White-faced" Geese, and said that he saw them every year when he first came up, and that in the spring of 1895 there were about 300 in a lot in Bell Sound, but that he had never been able to find the nest of this species.

* [Mr. Pike mentions six Bernicle Geese at Stor Fjord on May 30th.—EDD.]

8. SOMATERIA MOLLISSIMA (Linn.). Common Eider.

The Common Eider is, of course, generally distributed on the islands of Spitsbergen. I only once found them nesting on the mainland, when, at the foot of the Splendid Glacier, I met with two nests formed entirely of *Andromeda tetragona*, and each containing three eggs. At the "goose islands" in Ice Fjord, where Eiders and Geese once bred in large numbers, not a goose or duck was to be found last year; for foxes had crossed in the winter and had two thriving litters. When Mr. H. E. Conway and I were in camp at the Flower Garden we had two Eider islands within a few yards of our tent, which were a constant interest to us. The birds were absurdly tame, and we used to sit among them and sketch. If we approached a sitting duck too closely she would often cover up her eggs very deliberately before she moved off. If, however, an Eider (or for that matter a Long-tailed Duck) is driven hurriedly off her eggs she *invariably* squirts over them a stinking fluid. I cannot understand why this has been disputed, for even if the fluid should miss the eggs themselves some will most certainly be found on the down of the nest, as every down-collector knows to his cost.

- 9. SOMATERIA SPECTABILIS (Linn.). King-Eider.

The question of the breeding or not of the King-Eider in Spitsbergen has not yet been settled, but as a visitor to that country the bird has long been known. With the exception of two examples killed by Prof. Nordenskiöld on the south-east coast in 1858, and one by Dr. Malmgren in Safe Haven in 1864 (see Newton, *Ibis*, 1865, p. 516), I do not find any record of examples actually obtained until that presently to be mentioned as killed by one of our party last year. The King-Eider seems to have a more northerly range in Spitsbergen than was supposed, for Mr. Eaton has a note (*Zool.* 1874, p. 3817) upon this species:—"None were shot; but Lieut. Chermiside said he saw some at South Gat, Wijde Bay, and Lomme Bay."

Personally, I have seen them only in Advent Bay. In the week of June 20th-28th several small companies of

King-Eiders flew with each low tide from the sea to the marshes at the head of Advent Bay, where they fed among the Common Eiders, who also resorted there. If disturbed they would fly round mixed in a flock with the Common Eiders, but would presently separate and settle by themselves. On June 21st Studley and I walked a long way up the south shore of Advent Bay till we reached the marshes at the head. We saw there "many hundreds of Common Eiders and a fair sprinkling of King-Eiders"; perhaps we saw a hundred King-Eiders in all. They were hard to approach because of the creeks, but I missed badly a splendid old drake which flew round within shot while I was trying to balance myself on the only sound lump of grass in a bad place. On June 25th Studley killed a drake King-Eider off the sea in beautiful plumage, and on the same day I killed a duck of this species. I find no entries about the species after June 28th.

10. *HARELDA GLACIALIS* (Linn.). Long-tailed Duck.

Reference to the writings of other observers goes to show that this species is more abundant in Spitsbergen than my own observation has led me to suppose. Von Heuglin says: "We have seen it on Dun Island, Ice Island, and Ice Fjord." He adds that "it frequents the rocks of fresh-water lakes, and flies in dense flocks, chiefly of males, low over the sea." The first remark is probably a general reference to the habits of the species; and the last no doubt refers to Malmgren's observation, in 1864, of a family-party of five "on a small pool of fresh water on one of the Horn Sound Islands." Malmgren reports four others, including a pair as far north as 80°, of which the male went to the Stockholm Museum. This I take from Prof. Newton's paper (*Ibis*, 1865, p. 515). Mr. Cocks says (*Zool.* 1884, p. 15): "Three ducks flying in Recherche Bay on Sept. 22nd were without much doubt of this species, but they did not come close enough to identify with certainty." Mr. Eaton says (*Zool.* 1874, p. 3816): "This duck occurred in King's, Wijde, Neurenberg, and Lomme Bays. In the first of these localities

a duck and drake were shot right and left by Licut. Cherm-side, but only the duck was secured."

Personally, I saw but one individual of this species—a duck sitting out of shot among a lot of Common Eiders on the beach of Losh Island Bay on July 27th. I tried to stalk her, but she left the Eiders, dropped into the water, and swam rapidly off.

+ 11. *LAGOPUS HEMILEUCURUS*, Gould. Ptarmigan.

I notice that three writers, viz. Nordenskiöld (Voy. 'Vega,' i. p. 130) and Messrs. Evans and Sturge (Ibis, 1859, p. 169), have spoken of this bird as if it were more abundant on Spitsbergen than I found it. I should describe it as very thinly scattered over the country. I have walked for many days continuously high up on the bluffs, which form its favourite resort, without seeing a single individual. In the beginning of June, on our first landing, a white male bird was shot, but thereafter I did not see one which was not in so advanced a state of moult that the greatest possible care in skinning was necessary. It is, however, right to add that I left on Aug. 18th, before these birds would have completed their winter moult. The crop of a male bird I shot on the way to Sassendal on June 23rd was filled with grass-seeds.

All the examples what I met with were very tame. This bird has one habit which is, I think, worth noticing. When disturbed on a lower level it will fly straight off to the hill-side, and there it at first behaves in a restless manner, flying a short distance from point to point, and each time on settling turning itself round, much as a male pigeon does when courting. It then flies a few yards, settles again, and turns round. Finally, after it has repeated this performance some half a dozen times or so, it settles and remains absolutely still, not even moving its head. I saw several birds do this, and though I watched them through a strong glass for many minutes, I never could detect the smallest movement: they looked like bits of light-coloured rock. After they have taken this motionless attitude they do not move again, in my experience, so long as you are in sight—unless, of course, you deliberately go and put them up.

I cannot attempt to explain the distribution of the Ptarmigan on Spitsbergen. Sir Martin Conway's party, when they crossed from Advent Bay to Stor Fjord and again on the return journey by way of Sassendal, saw little of this bird. At the same time there are undoubtedly places in Spitsbergen where those birds are, after the breeding-season, more numerous, as the following quotation from Nordenskiöld's narrative goes to show (Voy. 'Vega,' i. p. 130):—“On Spitsbergen the bird had only been found before 1872 in single specimens, but in that year, to our glad surprise, we discovered an actual Ptarmigan-fell in the neighbourhood of our winter colony, immediately north of the 80th degree of latitude. It formed the haunt of probably a thousand birds.” Nordenskiöld makes, however, no claim to be regarded as an ornithologist, as various inaccuracies in his description show. And the remark which follows—“They probably breed under stones in summer,”—cannot be accepted without proof. I at any rate found several old nests and one of the year with broken shells, placed in the open in the ordinary Lagopode manner.

12. *ÆGIALITES HIATICULA* (Linn.). Ringed Plover.

Only three specimens of the Ringed Plover had apparently been obtained upon Spitsbergen before my visit, and to these I am able to add a fourth. Perhaps I may be allowed here to quote from Prof. Newton's paper (*Ibis*, 1865, p. 504) on the former:—“Sir James Ross states that a bird of this species was killed by Mr. M'Cormick in Hecla Cove; and it may be inferred from what he says that General Sabine also obtained a specimen in Spitsbergen. Dr. Malmgren mentions that Professors Torell and Nordenskiöld found on one of the Seven Islands in lat. 80° 45' N. a brood of Ringed Plovers, which had probably been bred on one of these, the most northern islets of the known world. An old bird was killed from it and is now in the Stockholm Museum.” Prof. Newton adds that it was not observed by any of his party, nor had been seen the year before by the Swedish Expedition.

Mr. Eaton remarks (*Zool.* 1874, p. 3809) that “Lieut.

Chermside saw a Ringed Plover in Wijde Bay, which attempted to entice him away by shamming lameness, as if its nest was close at hand."

One example was seen by our party last year. This, a female, was shot in Advent Bay by Mr. Studley on June 17th, and is now in the National Collection.

+13. *STREPSILAS INTERPRES* (Linn.). Turnstone.

There is no doubt that the Turnstone is an occasional visitor to Spitsbergen, although visitors to that land have been exceedingly unlucky in obtaining specimens. The only recorded example I can meet with is that of Mr. Alfred Cocks: "I shot a single specimen in Is Fjord on Aug. 23rd" (Zool. 1882, p. 408). Prof. Newton believed he saw Turnstones in Is Fjord, and I saw a single example last year flying low over the sea within two yards of my boat on July 29th.

+14. *PHALAROPUS FULICARIUS*, Linn. Grey Phalarope.

The Grey Phalarope has been referred to by many visitors to Spitsbergen, but it is evidently very sparingly scattered. Von Heuglin makes the same curious remark about this species as of one or two others: "It certainly prefers to sojourn on rocky islands, with moorlands, containing fens and pools, rather than on the mainland." What can this mean, and where are such islands off Spitsbergen? Even the group of large islands to the north-west do not correspond to this description, nor is it from there that the Grey Phalarope has been reported.

Of course the bird on Spitsbergen, as elsewhere, frequents any appropriate swampy ground. I was unlucky in not finding eggs; unfortunately we shot in Advent Bay, on June 23rd, a pair that would have bred, and these are in the National Collection. Their stomachs contained mosquito larvæ. On July 3rd, 1894, Col. H. W. Feilden saw two pairs in Green Harbour, and was fortunate enough to find a nest containing two eggs. "The male bird was on the nest" (Zool. 1895, p. 88).

+15. *TRINGA STRIATA*, Linn. Purple Sandpiper.

This little Sandpiper is extremely abundant in Spitsbergen

and is generally distributed. I even saw one pair on Walden Island, near the Seven Islands, in about N. lat. $80^{\circ} 40'$. It nests on almost every conceivable kind of ground, from the turf-ridges round low and swampy hollows to high up on the mountain sides. Those I obtained off the eggs themselves were, with one exception, male birds; and there can be no doubt that the greater part of the hatching is done by the male. This is probably true of the Sandpipers generally. The Purple Sandpiper, though (for a Sandpiper) clumsy in shape, has many of the pretty habits of its allied species—the habit, for instance, when at rest, of raising one wing at a time and holding it fully extended straight up in the air. Like all Sandpipers, they do much of their courtship on the wing, chasing one another in circles with rapid turns and shifts. On the ground I have seen the male bird approach the female with trailing wings, arched back, and head low down, occasionally hopping, like a courting pigeon. It is usual for writers to speak of the nest of this wader, and of that of the Waders generally, as a “shallow depression.” As a matter of fact the nest of the Purple Sandpiper (of the Little Stint, Dunlin, and some others) would be better described as a “deep cup.” The nest now shown in the National Collection, which I removed with its surroundings from Advent Bay, was a deep cup containing many dead leaves of *Salix polaris* *. Mr. Arnold Pike has a note for Oct. 5th: “Purple Sandpiper still here” (Danes Island).

[16. *CALIDRIS ARENARIA* (Linn.). Sanderling.

It has been reserved for my friend Mr. Arnold Pike to have

* The statement is made (in Yarrell, 4th ed. iii. p. 411) that in Spitsbergen the nest of this bird is lined with the leaves of *Betula nana*. Those noticed were almost certainly the leaves of *Salix polaris*. The creeping birch is so exceedingly rare in Spitsbergen that I failed to find an example; and Baron de Geer, on whose report for 1895 the single record of this plant was made, was himself unable to find the plant when there last year.

[Saunders took the above from Messrs. Evans and Sturge, who say (p. 171):—“Beautiful little nests they were, deep in the ground, and lined with stalks of grass and leaves of the Dwarf Birch (*Betula nana*, L.).”—EDD.]

the distinction of being the first, as I believe, to record the Sanderling from Spitsbergen. Mr. Abel Chapman is sponsor for the identification of the species, as the following note shows :—

“ Aug. 21st, Amsterdam Island. Shot a Sanderling out of a flight of three [skin in my possession.—A. C.]”

It is certainly not a little remarkable that this bird, which nests up to 82° 33' in Smith Sound, and whose known range includes Novaya Zemlya, should hitherto never have been even hinted at as observed by any naturalist in Spitsbergen.

By the end of August these birds were already in large flocks of old and young.

†17. STERNA MACRURA, Naum. Arctic Tern.

Upon Spitsbergen this species is abundant and, so far as my observations go, generally distributed. But I never came upon any place where these birds were nesting in large colonies. Three pairs at the most would occupy one part of a beach, and their nests would be far apart; then at the distance of a mile or so you might come upon a pair or two more. Thus there were five pairs in all nesting on the southern beaches of Advent Bay. One of these pairs had a nest containing a single egg on June 20th. A pair of Arctic Terns were for several days very anxious to nest within a few paces of our large group of tents, and were little disturbed by passers, only flying off for a few yards and then returning to the spot, where they made many false nests. The Arctic Tern, when preparing its nest, works with both the shoulders, using its feet only as a pivot. After turning round and scooping thus, it rests for a little without leaving the nest, and employs the time in picking with its bill at the ground near. On moving the bird after one of these resting-spells, I have found little stones and bits of shells in the bottom of the nest. I had formerly supposed that these and the small bits of seaweed occasionally seen in a Tern's nest were there by chance, but I am not sure now that they are not put there by deliberate act.

I do not think that the Skuas often succeed in robbing an

Arctic Tern's nest. Our pairs of Terns in Advent Bay did all the fishing in the neighbourhood of the nest, and the appearance of a Skua within half a mile was the signal for attack. Neither an Arctic nor a Buffon's Skua has a chance with a pair of Arctic Terns.

The Arctic Terns have a habit which I have elsewhere described * of *Sterna minuta* as observed in Norfolk; but the account so exactly fits the Arctic Terns that I may be forgiven perhaps for repeating it here: "Returned from its quest the bird, with a fish in its bill, circles round and round and lower and lower over its mate, and presently drops down beside her. Then he begins a series of extraordinary evolutions. With head thrown back, wings drooping, and tail cocked straight up, he struts—no other word expresses it—about in front of his mate. The attitude, a most comical one, is exactly that assumed by the 'Laughing Jackass' Kingfisher when laughing. He jumps at his mate as if daring her to take the fish. Then he will fly round for a bit, only to settle again and repeat the play."

I think this bird feeds largely on pteropods: the stomach of one I dissected was full of these.

† 18. PAGOPHILA EBURNEA (Phipps). Ivory Gull.

The presence of ice has some attraction for the Ivory Gull. It may be said indeed to go and come with the ice. To-day if the sea near your camping-ground is clear of ice, not an Ivory Gull will be seen; if to-morrow brings the drift-ice, with it come the Ivory Gulls. I expect the explanation will be found in the fact that this truly arctic species is greatly dependent upon seals' "leavings" of different sorts.

I did not at any point of our landing find a breeding-place of the Ivory Gull; but of course several such places have been recorded. Thus Dr. Malmgren, quoted by Prof. Newton (*Ibis*, 1865, p. 587), describes a colony on the north shore of Murchison Bay and Hinlopen Strait; Mr. Eaton mentions colonies in Wijde Bay and Lomme Bay; while Prof. Robert Collett contributed an interesting paper (*Ibis*,

* Paper called "In Norfolk by the Sea," in 'Pictures in Prose,' 1894.

1888, p. 410) on a colony found by Capt. Johannsen on an island off Cape Smith, 80° 9' N. lat. These birds were breeding there, from 50 to 75 pairs, "close to or only a short way above high-water mark, on low-lying ground, like *L. canus*, *L. fuscus*, &c., and not on the cliffs," where, however, their breeding-place has usually been described.

Ivory Gulls occasionally visited Advent Bay, apparently coming from Stor Fjord and following the passes through the hills, to feed on a heap of dead reindeer. The Ivory Gull may be identified, even in a bad light and at a long distance, by its clean-cut wings, long tail, and especially by its Tern-like flight.

+ 19. *LARUS GLAUCUS*, Fabr. Glaucous Gull.

Of this extremely abundant Spitsbergen bird it is necessary for me to say little. I would only remark upon the curious scarcity of immature individuals. With the exception of one immature bird brought from Danes Island by an excursionist (which, from the light character of the markings, I judged to be in second-year plumage), I did not in all my wanderings see a single example until August 18th, when three birds, evidently in plumage of the first year, flew round our boat in Horn Sound, one of which I shot and preserved. I remarked the same fact upon Kolguev Island. I presume immature birds keep to lower latitudes than breeding birds.

+ 20. *RISSA TRIDACTYLA* (Linn.). Kittiwake.

Much has been written upon the Kittiwake "rookeries" of Spitsbergen, and I have nothing to add.

+ 21. *STERCORARIUS POMATORHINUS* (Temm.). Pomatorhine Skua.

This Skua is exceedingly rare on Spitsbergen. I did not see a single example. Mr. Eaton is worth quoting at length in this connection (Zool. s. s. p. 3812):—

"The first Skua in the list was the last species obtained by us. The chief engineer, Mr. William Forbes, shot it for me near Cape Oetker, in Hinlopen Straits, on the 13th of August. Five others were afterwards killed by our men in the same

neighbourhood, some of them in immature plumage; and we could have obtained almost as many as we pleased when we were lying off Low Land*. They are scarce on the western coast of Spitsbergen; only one was seen by us in Magdalena Bay, and that was on the 6th of September or thereabouts. On the 13th and the 15th of September I saw a few on and near Hope Island."

Mr. Eaton was singularly fortunate. With the exception of a doubtful one in Sassen Bay, referred to by Prof. Newton, I cannot find any other references of any moment. On Bear Island the bird is abundant enough; and I can only suppose it is a sporadic visitor to Spitsbergen. I passed the points to which Mr. Eaton refers without seeing a specimen, and this was not for want of a constant and keen look-out. I may observe, too, that the "lumpy" appearance of this bird's twisted tail is easily noticeable even at a considerable distance, as I have elsewhere repeatedly proved; so that no observer of even average experience could fail to identify the species.

22. STERCORARIUS CREPIDATUS (Gmelin). Arctic Skua.

This bird is quite common in Spitsbergen. Dr. Malmgren distinguishes it from the Scandinavian form by "a notably smaller bill, a blacker back and head, with a broad ashy-grey band across the upper part of the breast" (see Newton, *Ibis*, 1865, p. 510). This must be true, on so good an authority. I have no Norwegian specimens by me; but I have several from Kolguev Island which do not differ in the above respects from those I obtained on Spitsbergen.

I may mention that I obtained from Axel Island, where it was nesting, the first example of the dark form known as "Richardson's Skua" recorded from Spitsbergen. It is now in the National Collection.

23. STERCORARIUS PARASITICUS (Linn.). Buffon's Skua.

Buffon's Skua is, I think, quite as abundant upon Spitsbergen as the last species. The birds were astonishingly bold, hanging round the camp for chance morsels. We caught

* By this he means, I take it, the coast of New Friesland.

one or two in muffled toothed traps. One of these settled down at once and fed readily. When I was alone in Dickson's Bay two pairs nesting there were astonishingly valiant. Each time I passed their nesting-ground they set at me, not stooping from a height as a Gull does, but each in turn coming straight at one's face with a long wing-stroke and a rapid level flight, so that it demanded some little resolution not to duck one's head. But when about a yard from my face they always "threw up" and passed over my head with a wind, and so close that I touched them on several occasions with my hand. Each bird kept crying incessantly until the moment came for the straight fly-in, and then it stopped and came on silently.

The Norwegians call this bird "küvia" or "tjuvo," from its call.

† 24. FULMAREUS GLACIALIS (Linn.). Fulmar Petrel.

Mariners have clustered I know not what superstitious about this uncanny bird. The first impression it must make upon a voyager to Northern seas is of a voiceless, tireless presence, going on hour after hour, with round anxious eyes, like some brooding Genius looking for lost souls—or bodies. But in the neighbourhood of a nesting colony—*e. g.* under the Capitolium in Eckman Bay, where numbers nest—it is a very different bird. Here, especially in fine weather, numbers of them are always on the water and washing constantly. I know of no bird that prolongs its bath as the Fulmar does; and while this is going on they are so engrossed as to allow a boat's nose almost to touch them before they move away. Old Petterson, my companion, always maintained that it was very necessary for it to wash: it was "such a dirty bird." Foreigners are said on the same grounds to have given a similar character to Englishmen.

I cannot find any reference to the Fulmar's voice. I have never heard it make any sound when on the wing, but when at rest on the water in quiet weather it frequently utters a complacent croak. Scoresby, as quoted in Yarrell, refers to a "chuckling" sound induced by guzzling. A white whale which we killed and skinned was rapidly devoured by Glaucous

Gulls and Fulmars; and as the Fulmar fed this sound was very noticeable. The Fulmars which contested morsels with the Glaucous Gulls almost always, to my surprise, came off victors. Colonel Feilden has mentioned (Zool. 1895, p. 85), as a new observation, that Fulmars in Advent Bay flew over the land along the shore-line. I frequently saw them well inland. I have seen a pair of Fulmars (where none nest) flying low down round and round the "Bastion"—a glacier-encircled rock where Garwood and I had our camp under Horn Mountain—for two hours at a time, and apparently with no purpose whatever beyond the fun of flying. I have seen during a whole morning a ceaseless stream of Fulmars moving up an inland valley, on their way across Spitsbergen from Sassen Bay to Stor Fjord. And I have seen, on a fine morning, in Eckman Bay, every Fulmar—and there must have been two hundred—on the water suddenly rise high in the air, and after wheeling round, like Rooks, disappear over the mountains in a north-easterly direction.

I cannot understand the writer who says (Yarrell, 4th ed. iv. p. 6): "Round Spitsbergen both forms are very numerous, and the light one breeds in thousands on some of the islands."* I may say at once that I have never seen any Fulmar whose breast was "white" as a Gull's is white; and most certainly, of the thousands I saw last year, the "white" parts of not one could be described even by courtesy as anything better than a "dirty light shade." I was constantly looking out for light examples, and the very lightest I saw I shot, and it is now in the National Collection, where it can speak for itself.

In illustration of the power of flight of the Fulmar, I may quote the following from my diary under date July 12, *à propos* of a very severe gale:—"Many Kittiwakes were sitting on shore afraid of the weather. The Guillemots, Little Auks, and Fulmars quite indifferent. Only the Fulmars could fly against it, flying low and running along on the waves. The Auks rising remained in the same place, and the Guillemots barely made any headway."

* [Saunders is responsible for this statement: he took it from Malmgren and others.—EDD.]

— 25. *URIA BRUENNICHI*, E. Sabine. Brünnich's Guillemot.

The loomerics of Spitsbergen have been the subject of so much writing that I can add little with advantage. The most interesting loomery, though one of the smallest I saw, was at Hyperit Hat, on the eastern shore of Ice Fjord. The site when I visited it on July 7th was shared by a few pairs of Mandt's Guillemots, Little Auks, and a single pair of Glaucous Gulls. The Brünnich's Guillemots were so situated that by mounting an adjacent bank I could look on to their ledges from a few yards' distance; and I wish to say deliberately that Brünnich's Guillemot does not invariably sit upon its eggs in the upright attitude of the pictures, but often at such an angle, leaning forward over the egg, that its weight must be heavily thrown on to the egg itself. The position of the incubation-mark on a nesting Guillemot, though so low down, does not negative the possibility of this. Each bird as it returns from the sea is received with clamour by its own section, so to say, of the colony, and is not allowed to settle (for quarters are limited) except under protest. A bird is indeed often baffled more than once, and has to fly round and try again; and I repeatedly saw cases where a Guillemot which was leaning low over its egg rose to an erect posture to repel an intruder (and in this position its egg became barely visible), and after an interval settled down again.

While the ice remained about the lower entries of Ice Fjord great numbers of Brünnich's Guillemots were there, and their movements are rhythmical. While the tide was making or at flood they kept out among the ice. Then I have often approached them so closely in a whale-boat that as they dived they could be followed by the eye for many feet in the clear water. They dive very deeply and far, often going almost perpendicularly down by the side of a floe, which would be some ten feet or so in thickness and perhaps six or seven yards across, and reappearing on exactly the opposite side. As the tide ran out they would leave the open sea and fly up in close flights to the heads of the bays, where they caught the little Arctic cod (*Boreagadus fabricii*, the "Is murt" of the Norwegians). With a single exception (taken out of a

charr's throat) all my specimens of this fish (about 5 inches long) were dropped by Guillemots when shot.

I have but one other remark to make. On Wednesday, August 5th, we were steaming slowly in the launch past Coal Bay, through a slightly broken sea. I was standing on deck with Conway, explaining to him the difference between the Common and Brünnich's Guillemot, many of the latter being then round us accompanied by their young. We passed one of these within a few yards, when I noticed that its young one was sitting on its back. I had barely time to call my companion's attention to this when the bird dived, old and young disappearing, not instantaneously but the old bird first, leaving the young one for an instant solitary, which then followed her example. Again, perhaps a quarter of an hour after this, a Guillemot whose young one was swimming close to her side, as they do, touching her suddenly, seemed to sink herself low in the water, and the next moment her young was on her back. The boat was then perhaps ten yards off, and two seconds or so after the birds had gone down.

Mr. Pike has a note which shows how early these and the bird next mentioned return to Spitsbergen:—"Jan. 11th. Saw Tystie on water and heard Eiders and Brünnich's Guillemots crying and diving close inshore" (in Chapman's 'Wild Norway,' p. 346).

Nordenskiöld remarks that Brünnich's Guillemot flies "heavily and ill." As a matter of fact, it is perhaps the fastest-flying of all Arctic birds.

† 26. *URIA MANDTII*, Licht. Mandt's Guillemot.

Who has been to the Arctic regions and not developed an affection for the little Tystie, so often the only companion of his solitude? This Guillemot nests farther inland than any other sea-bird in Spitsbergen except the Little Auk. It nests with equal unconcern within reach of the hand in chinks of the low rocks or miles inland high up in the inaccessible ridges of a mountain peak. There is nothing defiant or suspecting in the Tystie's character, but it is confiding and somehow always associates itself in one's recollections with sunshine and

stillness. This beautiful bird has a pretty habit of dipping its bill into the water at frequent intervals: not that it drinks or eats when so doing, for it does not; I think it is just a little wanton trick, out of sheer happiness.

It may be worth mentioning that the Guillemots use a foot when turning suddenly in the air, as a scull is used in "backing water." I daresay other birds do the same (I think I have noticed it in the Mallard, and I am sure I have in the Razorbill); but the Tystie, with its bright-coloured legs and confiding habits, offers so good a chance of observation that one may remark the habit a hundred times a day.

+ 27. *MERGULUS ALLE* (Linn.). Little Auk.

Mr. Pike noticed Little Auks on their arrival in Dane's Gat for the first time on March 28th, and the latest date on which he observed them was October 13th. I obtained the young in Wijde Bay on August 9th, but these were then at least a fortnight old. Many of the Little Auks during nesting-time appeared to have the mumps; but examination showed that this was due to a collection of food, chiefly shrimps (or *Gammarus*), which the bird retained in its mouth, no doubt for its young. These birds breed as far inland as the Tystie. They even nest high up on the glacier-set Horn Mountain. As Garwood and I were descending from our climb of this peak on August 17th, while still at about 3000 feet, a single Little Auk—apparently the last left—flew round and round just below us as we looked down over an *arête*, evidently very anxious for its young. As it flew it made a twittering noise. On the sea it frequently in fine weather makes "a noise like a dabchick," as I find in my notes. I may mention, though I cannot explain the fact, that round the freshwater lakes where the Red-throated Divers bred, at the Flower Garden, Cape Wijk, I found many perfect skeletons of Little Auks.

—28. *FRATERCULA GLACIALIS* (Leach). Northern Puffin.

The Northern Puffin has been recorded from as far north as Walden Island (Eaton, Zool. 1874, p. 3819). I did not actually see it there, though I saw several on the sea between Verlegen Point and Walden Island. It is generally but

sparingly distributed round West Spitsbergen. I have presented some examples to the National Collection, and no one who compares these with *F. fratercula* can, I think, hesitate to accept the correctness of the separation of these two species.

29. COLYMBUS SEPTENTRIONALIS, Linn. Red - throated Diver.

This, the only Diver observed in Spitsbergen, has, so far as is known, a fairly wide distribution there; for Mr. Eaton records it from Wijde Bay and Neurenberg Bay, and Prof. Newton says it breeds as far north as the Seven Islands. There were three pairs on the lakes by the Flower Garden, Cape Wijk, last year. Two had made nests, but had no eggs, on July 17th*.

XLIV.—*Additional Observations on the Birds of the Province of Fohkien.* † By C. B. RICKETT and J. D. DE LA TOUCHE. *With Notes by W. R. OGILVIE GRANT.*

MR. F. W. STYAN and the writers made an excursion to Ching Feng Ling in December last, leaving Foochow on the 5th and returning on the 20th instant.

Ching Feng Ling is a hamlet situated among the hills about 100 miles north-west of Foochow and some 1500 feet above the sea. The mountains in the vicinity range from about 2000 to 2500 feet in height. They are mostly covered with thick brushwood, bamboos, and "sword-grass," with here and there small pine-woods. There are three patches of high forest in the neighbourhood, from two of which we obtained most of our specimens. The third (which was more distant) was visited once by our native collectors.

We subjoin (p. 602) a list of birds obtained, with notes on a few of the more interesting species. We also give below

* [There is some evidence that either a Great Northern Diver or, more probably, the Yellow-billed Northern Diver, was seen off Spitsbergen in the autumn of 1882. Cf. A. H. COCKS, Zool. 1883, pp. 399-400.—EDD.]

† Cf. IBIS, 1892, pp. 400-430, 477-503; 1894, pp. 215-226; 1896, pp. 489-495; 1897, pp. 169-176, pl. iv.